ANNEXURE - 13 DEPARTMENT OF COMPUTER SCIENCE

VISION

> To play an active role in the information technology revoluation

MISSION

To help students discover their ability and interest in computing, developing it, and to encourage them to extend the application of computers to solve the problems of the Society.

Programme Educational Objectives (PEO)

PEO1	Natural navigators and nimble witted in diagnosing problems, in enlisting steps to rectify them and in providing the most effective solutions in the best possible way
PEO2	Moralistic while demonstrating their academic caliber, in recognizing and acknowledging value systems, in making decisions, accepting responsibilities and while concerned about society and public issues and needs
PEO3	Self-reliant in learning and in real life job situations through which they support their peers and become stable and reliable students, workers and citizens
PEO4	Steadfast in shielding and nurturing environment and stimulate its sustainable growth for a bright future
PEO5	Versatile and vibrant communicators in person and through other media. Vigilant/vital in prolonging the long winding richness and tradition of their mother tongue
PEO6	Neoteric global citizens of our nation, who would take the nation's pride around the world by adapting and adopting the scientific and technological developments
PEO7	Civilized and confident graduates, who believe in lifelong learning with the socio-cultural changes in the generations to come

Programme Outcome (PO)

PO1	Development of solutions: Design and develop the system components and
	find solutions for complex problems in ethical manner, processes to meet the
	specifications with consideration for the public safety and environmental
	development.
PO2	Skill oriented: Able to tackle modern technical challenges and recent issues
	in work environment with morality, can apply ethical principles and commit
	to professional practice in computer profession with reliability and stability.
PO3	Qualitative Attitude: Communicate effectively in oral, written and
	graphical form to extend ethical attitude and leadership skills. Manage
	effectively with the large society of computer professionals. Exhibit
	analytical decision making and problem solving skills for handling dynamic
	real time challenges.
PO4	Life-long learning: Ability to engage themselves independently and follow
	self study and continuous learning in the broadest context of technical and
	technological changes. Demonstrate the knowledge and need for sustainable
	development in society and multidisciplinary fields.
PO5	Services to Environment: Promote the goodwill and impact of the
	professional IT solutions in society and environment. The broad education

to	understand	the	impact	of	IT	solutions	in	a	global,	economic,
en	vironmental,	and s	ocietal c	onte	xt.					

PROGR	AM SPECIFIC OUTCOME (PSO)
PSO1	Ability to analyze a problem, identify and define the computing
	requirements, which may be appropriate to its solution.
PSO2	Apply the knowledge of ethical and management principles required to work
	in a team with stewardship of the society.
PSO3	Able to apply the knowledge gained during the course of the programme in
	the areas of problem solving, analysis, design & development of software
	and hardware to choose a career option in high degree of employability /
	entrepreneurship / Higher Education.
PSO4	Evolve as globally competent computer professionals possessing leadership
	skills and domain knowledge for developing innovative solutions in
	multidisciplinary domains.
PSO5	To acquire the knowledge on multiple programming skills to develop core
	software products that lays the foundation for further application
	development in the field of computer science and recent technology with
	focus on multimedia and animation.

MAPPING PEO AND PO PEOs that are attained through concerned PO

	PO1	PO2	PO3	PO4	PO5
PEO1	3	2	3	2	3
PEO2	3	3	3	2	2
PEO3	2	3	2	3	3
PEO4	2	3	2	3	3
PEO5	2	2	3	3	2
PEO6	3	3	2	3	3
PEO7	3	2	1	3	2

SE M	Part – I	Part – II		F	Part – III			F	Part – IV	V		Part – V (6 th Hr)	ACC (6 th Hr)		SLC	
I Sem.	I Lang (6)	II Lang (6)	Core (4)	Core (4)	Core Lab (3)	Core Lab (3)	Allied Maths (4)			-	Total (30)	NCC/NSS/PED./ R.R/Li.Sc (3)	Com. Eng (2)	Comp. Lit (1)	_	_
II Sem.	I Lang (6)	II Lang (6)	Core (5)	Core Lab (3)	Allied P La (3	hysics b)	Allied Maths (4)	SH (3E 2)	Elec. EVS (1)	Total (30)	NCC/NSS/PED./ R.R/Li.Sc (3)	Com. Eng (2)	Comp. Lit (1)	_	SLC
III Sem.	I Lang (6)	II Lang (6)	Core (6)	Core Lab (6)	Allied M	Maths)	_	NN (2	ИЕ 2)	-	Total (30)	NCC/NSS/PED./ R.R/Li.Sc (3)	Com. Eng (2)	Comp. Lit (1)	_	SLC Human Rights
IV Sem.	I Lang (6)	II Lang (6)	Core (6)	Core Lab (6)	Allied M	Maths)	_	NM (2	ИЕ 2)	-	Total (30)	NCC/NSS/PED./ R.R/Li.Sc (3)	Com. Eng (2)	Comp. Lit (1)	-	SLC Web Design
V Sem.	Core (5)	Core (5)	Core Lab (5)	Core Lab (5)	Ele (5)	c.)	-	SBE (2)	SBE (2)	Elec. W.S. (1)	Total (30)	_	Com. Eng (2)	Comp. Lit (1)	Skill Devt – Career Guidance (3)	SLC Major Client server computing
VI Sem.	Core (4)	Core (4)	Core lab (5)	Elec. (5)	Ele Proj (6)	c. ect)	-	SBE Major (2)	SBE Major (2)	Elec. VBE (2)	Total (30)	_	Com. Eng (2)	Comp. Lit (1)	Skill Devt – Career Guidance (3)	_
					•					Total	180 Hrs					
angua	ıge	-		Ta	mil											
angua	ge	-		En	glish											
£		-		Sk	ill – Ba	sed E	lectives									
2		_		Se	lf – Lea	rning	Course	<u>)</u>								

B.Sc COMPUTER SCIENCE

Department of Computer Science

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EVS

W.S.

VBE

Environmental Studies

Value Based Education

Women Studies

B.SC COMPUTER SCIENCE: CHOICE BASED CREDIT SYSTEM WITH OBE PATTERN FOR THOSE WHO HAVE JOINED FROM THE ACADEMIC YEAR 2021-22 ONWARDS

Dont	Course	Subject	CODE	U#0	6 th	C -	Adl.	Exam	Marks		
Fart	Course	Subject	CODE	пгs.	Hr.	Cr.	Cr.	(Hrs)	Int.	Ext.	
		SEM	ESTER - I								
Ι	Lang. – I	Tamil – I	210103101	6		3		3	25	75	
II	Lang. – II	English – I	211003101	6		3		3	25	75	
	Core	C Programming	212503101	4		4		3	25	75	
	Core Lab	C Programming Lab	212503102	3		2		3	40	60	
III	Al.Phy	Digital Principles and Applications	212103122	4		3		3	25	75	
	Al. Maths	Discrete Mathematics Paper – I	212003122	4		4		3	25	75	
	Al. Phy Lab	Digital Electronics Practical's	-	3		-		-	-	-	
v	Extension activities	NSS / NCC / PED/Rover and Rangers/Library Science and Information	_		3			_	-	_	
	Additional	Communicative English–I	-		2			_	_	-	
	Courses	Computer Literacy	-		1			-	-	-	
		SEME	ESTER – II								
Ι	Lang. – I	Tamil – II	210103201	6		3		3	25	75	
II	Lang. – II	English – II	211003201	6		3		3	25	75	
	Core	Object Oriented programming with C++	212503201	5		4		3	25	75	
TIT	Core Lab	C++ Programming Lab	212503202	3		2		3	40	60	
111	Al. Mat	Discrete Mathematics Paper – II	212003222	4		4		3	25	75	
	Al. Phy Lab	Digital Electronics Practical's	212103223	3		3		3	40	60	
IV	SBE	Computer organization	214403225	2		2		3	25	75	
	EVS	Environmental Studies	214103201	1		1		2	-	100	
v	Extension activities	NSS / NCC / PED/Rover and Rangers/Library Science and Information	_		3			-	-	-	
	A 1 1. 1	Communicative English – I	218003201	-	2	-		-	-	-	
	Additional Courses	Computer Literacy	_	-		-	_	-	-	-	
	SLC	Office Automation	218003225	-	-	-	3	3	_	100	
		SEME	STER – III	1	T	r ————	r				
Ι	Lang. – I	Tamil – III	210103301	6		3		3	25	75	
II	Lang. – II	English – III	211003301	6		3		3	25	75	
	Core	Java Programming	212503301	6		5		3	25	75	
III	CoreLab	Java Programming Lab	212503302	6		5		3	40	60	
	Al. Maths	Linear Programming	212003322	4		4		3	25	75	
IV	NME – I	Fundamentals of Information Technology	214603325	2		2		3	25	75	
v	Extension activities	NSS / NCC / PED/Rover and Rangers/Library Science and Information	_		3			-	_	_	
	Additional	Communicative English- II	-		2			-	-	-	
	Courses	Computer Literacy	_		1			-	_	-	
	SLC	System Software	218003325	-	-	-	3	3	_	100	

Part	Course	Subject	CODE	Hrs.	6 th	Cr.	Adl.	Exam	Ma	rks
		SEMI	ESTER - IV		Inf.		Ur.	(1115)	Int.	Ext.
Ι	Lang. – I	Tamil – IV	210103401	6		3		3	25	75
II	Lang. – II	English – IV	211003401	6		3		3	25	75
	Core	Operating Systems	212503401	6		5		3	25	75
III	Core Lab	Web Design Lab	212503402	6		5		3	40	60
	Al. Maths	Numerical Analysis	212003422	4		4		3	25	75
IV	NME – II	Introduction to HTML	214603425	2		2		3	25	75
v	Extension activities	NSS / NCC / PED/Rover and Rangers/Library Science and Information	-		3	1		3	25 *40	75 *60
	Additional	Communicative English–II	218003401		2		1	3	25	75
	Courses	Computer Literacy	-		1			_	_	_
	SLC	Web design	218003425	-	-	-	4	3	-	100
		SEM	ESTER – V	T	1	1	1			
	Core	Database Management System	212503501	5		5		3	25	75
	Core	Data structures	212503502	5		5		3	25	75
III	Core Lab	RDBMS Lab	212503503	5		4		3	40	60
	Core Lab	Data Structures Lab	212503504	5		4		3	40	60
	Elec. – I	Elective - I	212503505/ 212503506	5		5		3	25	75
	SBE – II	Python Programming Lab	214403525	2		2		3	40	60
IV	SBE – III	Visual Programming lab	218203525	2		2		3	40	60
	WS	Women Studies	214503501	1		1		2	_	100
		Communicative English– III	-		2			-	_	-
	Additional Courses	Computer Literacy	-		1			-	-	-
		Skill Development – Career Guidance	-		3			-	-	-
	SLC	Client\Server Computing	218003525				4	3	_	100
	Corro	SEMI	ESTER – VI		1					
	Core	Computer Networks	212503601	4		4		3	25	75
	Core	Software Engineering	212503602	4		4		3	25	75
III	Core Lab	.Net Lab	212503603	5		2		3	40	60
	*Elec. – II	*Elective - II	212503604/ 212503605	5		5		3	25	75
	*Elec. – III	Project *Report;@Viva	212503606	6		5		-	40 [24:16]	60 [36:24]
	SBE – IV	MAT LAB Programming Lab	214403625	2		2		3	40	60
IV	SBE – V	Linux Programming Lab	218203625	2		2		3	40	60
	VBE	Value Based Education	214303601	2		2		2	-	100
		Communicative English- III	218003601		2		1	3	25	75
	Additional Courses	Computer Literacy Skill Development – Career	218003602		1		1	3	-	100
		Guidance	218003603	190	3	140	2	3	_	100
TUTAL 180 *Flective _ L _ L 1 Multimedia and its Applications 2125							20			
	*Elective – I – I.1. Multimedia and its Applications I.2 Python Programming *Elective – II – II.1. Computer Graphics II.2 Cloud Computing					506 504 505				

N.M.S.S.Vellaichamy Nadar College, Nagamalai, Madurai – 19

Core Subject

DATA BASE MANAGEMENT SYSTEM SEMESTER V

Code: 212503501 5 Hrs/Week Credits 5

PREAMBLE

Facilitates the students to be familiar with Database Management Concepts and contribute an ability to design their own design in database.

COURSE OUTCOMES (COs)

On Successful completion of the course, the student will be able to

No.	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)
CO 1	Identify the basic concepts of DBMS and Classify the Data Models and Data Languages	Up to K3
CO2	Understand the basic structure of Relational Model and Relational Algebra Operations.	Up to K3
CO3	Demonstrate the SQL Queries, Set Operations, Nested Sub Queries and Modification of the Database	Up to K3
CO4	Understand and apply Tuple Relational Calculus, Domain Relational Calculus and E-R Model	Up to K3
CO5	Demonstrate Normalization and understand Storage and File Structure	Up to K3

K1-Knowledge K2 – Understand K3- Apply

UNIT – I:

[15 Hrs]

Introduction: Database – System Applications – Purpose of Database Systems– View of Data – Database Languages – Relational Databases.

UNIT - II:

[15 Hrs]

[15 Hrs]

[15 Hrs]

Introduction to the Relational Model: Structure of Relational Databases – Database Schema – Keys – Schema Diagrams – Relational Query Languages – Relational Operations – Formal Relational Query Languages: The Relational Algebra.

UNIT	_	III:
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Introduction to SQL: Overview of SQL Query Language – SQL Data Definition – Basic Structure of SQL Queries – Additional Basic Operations – Set Operations – Null Values –Aggregate Functions – Nested Sub Queries – Modification of the Database – Intermediate SQL: Join Expressions – Views – Integrity Constraints – Advanced SQL: Triggers in SQL.

UNIT- IV:

Formal Relational Query Languages: The Tuple Relational Calculus – The Domain Relational Calculus – Database Design and the E-R Model: Overview of the Design Process – The Entity -Relationship Model –Constraints – Entity – Relationship Diagrams – Extended E-R Features. UNIT - V:

[15 Hrs]

Relational Database Design: Features of Good Relational Designs – First Normal Form – Second Normal – Third Normal Form – BCNF – Decomposition Using Functional Dependencies –Storage and File Structure: File Organization – Organization of Records in Files – Data Dictionary Storage.

TEXT BOOK:

01.Abraham Silberschatz, Henry F.Korth, S Sudarshan, Database System Concepts, 6th Edition, McGraw Hill Education (India) Private Limited, New Delhi, 2013.

Unit I	Chapter 1- 1.1-1.	5
Unit II	Chapter 2, 6 –	2.1-2.6, 6.1
Unit III	Chapter 3, 4, 5 –	3.1 - 3.9, 4.1 - 4.2, 4.4, 5.3.2
Unit IV	Chapter 6, 7 –	6.2, 6.3, 7.1-7.3, 7.5, 7.8
Unit V	Chapter 8, 10 – 8.	1-8.3, 10.5-10.7

REFERENCES:

- 1. Alexis Leon, Mathews Leon , Fundamentals of Database Management Systems ,_McGraw Hill Education , 2009
- 2. Thomas Connolly , Carolyn Begg , Database Systems A Practical Approach to Design, Implementation, and Management Sixth Edition By Pearson Publication -2019
- 3. Raghu Ramakrishnan (Author), Johannes Gehrke , Database Management Systems 3rd Edition , Mcgraw Hill , July 2014

WEB RESOURCES:

- 1. https://www.javatpoint.com/dbms-tutorial
- 2. https://www.tutorialspoint.com/dbms/index.htm
- 3. https://www.geeksforgeeks.org/dbms

PEDAGOGY: Chalk, Talk, Power point presentation, Videos

COURSE CONTENTS & TEACHING / LEARNING SCHEDULE

Module No.	Торіс	No. of Lectures	Content Delivery Method	Teaching Aids
	UNIT – I [15	Hrs]		
1.1	Introduction: Database	2	Lecturer	Black board
1.2	System Applications	2	PPT Presentation	Projector
1.3	Purpose of Database Systems– View of Data	3	PPT Presentation	Projector
1.4	Database Languages	4	Lecturer	Black board
1.5	Relational Databases	4	Lecturer	Black board
	UNIT – II [15	Hrs]		
2.1	Introduction to the Relational Model: Structure of Relational Databases	3	PPT Presentation	Projector
2.2	Database Schema – Keys – Schema Diagrams	3	PPT Presentation	Projector
2.3	Relational Query Languages	3	Lecturer	Black board
2.4	Relational Operations	3	Lecturer	Black board
2.5	FormalRelationalQueryLanguages: The Relational Algebra.	3	Lecturer	Black board

UNIT – III [15 Hrs]

N.M.S.S.Vellaichamy Nadar College, Nagamalai, Madurai – 19

3.1	Introduction to SQL: Overview of SQL Query Language – SQL Data Definition	3	Lecturer	Black board
3.2	Basic Structure of SQL Queries – Additional Basic Operations – Set Operations – Null Values	3	PPT Presentation	Projector
3.3	Aggregate Functions – Nested Sub Queries – Modification of the Database	4	PPT Presentation	Projector
3.4	Intermediate SQL: Join Expressions – Views – Integrity Constraints	2	Lecturer	Black board
3.5	Advanced SQL: Triggers in SQL	3	Lecturer	Black board
	UNIT – IV [15	Hrs]		
4.1	Formal Relational Query Languages: The Tuple Relational Calculus	3	Lecturer	Black board
4.2	The Domain Relational Calculus	3	PPT Presentation	Projector
4.3	Database Design and the E-R Model: Overview of the Design Process	3	PPT Presentation	Projector
4.4	The Entity -Relationship Model – Constraints	3	Lecturer	Black board
4.5	Entity -Relationship Diagrams – Extended E-R Features	3	Lecturer	Black board
	UNIT – V [15	Hrs]		
5.1	Relational Database Design: Features of Good Relational Designs	3	Lecturer	Black board
5.2	First Normal Form - Second Normal	3	PPT Presentation	Projector
5.3	Third Normal Form –BCNF- Decomposition Using Functional Dependencies	3	PPT Presentation	Projector
5.4	Storage and File Structure: File Organization	3	Lecturer	Black board
5.5	Organization of Records in Files - Data Dictionary Storage	3	Lecturer	Black board

MAPPING OF COs WITH POs

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	3	2	2
CO2	3	2	2	3	2
CO3	3	2	2	2	3
CO4	3	3	2	3	2
CO5	3	2	3	3	2
	0 0	0	3.6 11	4	

3 - Strong 2 - Medium 1- Low

COURSE DESIGNER: Mrs. M. SAROJA

Core Subject

DATA STRUCTURES

Code:212503502

SEMESTER V

5 Hrs/Week Credit 5

PREAMBLE:

arsigma This course is planned to understand the various data structures and their operations, analyze computations of different data structures, identify suitable data structure for specific applications.

COURSE OUTCOMES (COs)

On	On Successful completion of the course, the student will be able to				
No.	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)			
CO1	Understand the basic concept of data structures and demonstrate basic operations of an array	Up to K3			
CO2	Discuss various types of linked lists, it's operations & simple applications	Up to K3			
CO3	Demonstrate basic operations of stacks, queues, circular queues and applications.	Up to K3			
CO4	Classify the trees and know their properties & operations	Up to K3			
CO5	Have a knowledge on various graph representation & various internal sorting Methods	Up to K3			

K1- Knowledge K2 – Understand K3-Apply

[15 Hrs]

Introduction to Data Structures: The Need for Data Structures -Definitions.

Arrays: Introduction-Range of an Array - Primitive Operations -Element Access in an Array – Addressing Function – One Dimensional Array - Two Dimensional Array - Multi-Dimensional Arrays - Special Types of Matrices.

UNIT - I:

Linked List: Introduction - Memory Allocation - Benefits of Linked Lists - Limitations of Linked Lists - Types - Basic Operations in Linked List - Singly Linked Lists - Simple Algorithms on Linked lists - Circular Linked Lists -Doubly Linked Lists – Applications of Linked Lists.

UNIT - III:

Stacks: Introduction - ADT Stack - Implementation of Stack - Linked List Implementation of Stack - Applications of Stack - Tower of Hanoi.

Queues: Introduction - Implementation of Queues - Implementation of Basic Operations on Array-Based Implementation of Queues - Implementation of Basic Operations on Linked List - Based Implementation of Queues -Circular Queues.

[15 Hrs]

[15 Hrs]

UNIT - II:

UNIT - IV:

[15 Hrs]

Trees: Introduction – Binary Trees – Number of Nodes in Binary Trees: Operations on Binary Trees – Inorder Traversal – Pre Order Traversal – Post Order Traversal – Breadth First Traversal – Representation of Binary Trees – Linear Representation – Linked Representation – Binary Tree Traversal in C – Inorder Traversal – Non-Recursive Algorithm for Preorder Traversal – Applications of Binary Trees – Huffman Coding – Decoding – Threaded Binary Trees – Expression Trees.

Binary Search Tree: Introduction – Creating a BST – Inserting an Element into BST – Searching an Element in BST – Deleting an Element in BST. UNIT - V: [15 Hrs]

Graphs: Introduction– Representation of Graphs – Traversal – BFS – DFS – Minimum Spanning Tree –Topological Sort.

Sorting: General Background of Sorting – Classification of Sorting Algorithms – Bubble Sort – Quick Sort – Selection Sort – Insertion Sort – Merge Sort.

TEXT BOOK:

1. A. Chitra and P.T.Rajan, Data Structures, Second Edition, Vijay Nicole Imprints Private Limited, Chennai, 2016.

11 14	Chapter1	(Pages 1 - 6)				
Unit1:	Chapter3	(Pages 29 - 39)				
Unit2:	Chapter4	(Pages 47 - 71 & 84 - 88)				
Unit2.	Chapter5	(Pages 91 – 121)				
Unit3:	Chapter6	(Pages 123 -128 &131 – 133)				
Unit4:	Chapter 7	(Pages 139 – 143, 148-154, 157 – 170, 179 – 180 & 184 – 185)				
	Chapter 8	(Pages 205 – 214 & 219 - 225)				
Unit5:	Chapter11	(Pages 291 – 311, 324 – 326 & 334 – 338)				
	Chapter 12	(Pages 363 – 382 & 394 – 403)				

REFERENCES:

- 1. Data Structure and Algorithm Analysis in C, Mark Allen Weiss, Second Edition, Addison Wesley Publishing Company, 1997.
- 2. C and C++ Programming Concepts and Data Structures, P.S.Subramanyam, BS Publications, 2013.
- 3. Data Structures and Algorithms, Alfred V.Aho, John E.Hopcraft and Jeffrey D.Ullman, Pearson Education, Fourteenth Impression, 2013.

WEB RESOURCES:

- 01.https://www.javatpoint.com/data-structure-tutorial
- 02.https://www.programiz.com/dsa/types-of-queue
- 03.https://www.geeksforgeeks.org/linked-list-set-2-inserting-a-node/

PEDAGOGY: Chalk, Talk, Power point presentation, Videos

	eeense contents & renomina /	/ LEARNING SCHEDULE			
Module No.	Торіс	No. of Lectur es	Content Delivery Method	Teaching Aids	
	UNIT – I [15 I	Hrs]			
	Introduction to Data Structures:				
1.1	The Need for Data Structures – Definitions	3	Lecturer	Black board	
1.2	Arrays: Introduction-Range of an Array – Primitive Operations	3	PPT Presentation	Projector	
1.3	Element Access in an Array – Addressing Function	3	Lecturer	Black board	
1.4	One Dimensional Array – Two Dimensional Array	3	PPT Presentation	Projector	
1.5	Multi-Dimensional Arrays –Special Types of Matrices	3	PPT Presentation	Projector	
	UNIT – II [15]	Hrs]			
2.1	Linked List: Introduction – Memory Allocation	2	PPT Presentation	Projector	
2.2	Benefits of Linked Lists — Limitations of Linked Lists – Types	3	PPT Presentation	Projector	
2.3	Basic Operations in Linked List – Singly Linked Lists	3	Lecturer	Black board	
2.4	Simple Algorithms on Linked lists - Circular Linked Lists	4	PPT Presentation	Projector	
2.5	Doubly Linked Lists – Applications of Linked Lists	3	Lecturer	Black board	
	UNIT – III [15	Hrs]			
3.1	Stacks: Introduction – ADT Stack – Implementation of Stack	2	Lecturer	Black board	
3.2	Linked List Implementation of Stack – Applications of Stack - Tower of Hanoi	4	PPT Presentation	Projector	
3.3	Queues:Introduction-Implementation of Queues	4	PPT Presentation	Projector	
3.4	Implementation of Basic Operations on Array-Based Implementation of Queues	2	Lecturer	Black board	
3.5	Implementation of Basic Operations on Linked List– Based Implementation of Queues – Circular Queues	3	PPT Presentation	Projector	
	UNIT – IV [15	Hrs]			
4.1	Trees: Introduction – Binary Trees – Number of Nodes in Binary Trees: Operations on Binary Trees – Inorder Traversal – Pre Order Traversal – Post Order Traversal – Breadth First Traversal	4	Lecturer	Black board	
4.2	Representation of Binary Trees – Linear Representation – Linked Representation – Binary Tree Traversal in C – Inorder Traversal – Non-Recursive Algorithm for Preorder Traversal – Applications of binary Trees	4	PPT Presentation	Projector	

N.M.S.S.Vellaichamy Nadar College, Nagamalai, Madurai – 19 COURSE CONTENTS & TEACHING / LEARNING SCHEDULE

N.M.S.S.Vellaichamy Nadar College, Nagamalai, Madurai – 19

4.3	Huffman Coding – Decoding – Threaded Binary Trees – Expression Trees	2	PPT Presentation	Projector
4.4	Binary Search Tree: Introduction – Creating a BST – Inserting an Element into BST	3	PPT Presentation	Projector
4.5	Searching an Element in BST – Deleting an Element in BST	2	Lecturer	Black board
	UNIT – V [15]	Hrs]		
5.1	Graphs: Introduction – Representation of Graphs	2	Lecturer	Black board
5.2	Traversal – BFS – DFS	3	PPT Presentation	Projector
5.3	Minimum Spanning Tree – Topological Sort	3	PPT Presentation	Projector
5.4	Sorting: Introduction –Types of Sorting – BubbleSort –Insertion Sort	3	Lecturer	Black board
5.5	Selection Sort – Merge Sort – Quick Sort	4	PPT Presentation	Projector

MAPPING OF COs WITH POs

	PO1	PO2	PO3	PO4	PO5
CO1	2	2	2	2	3
CO2	3	3	3	2	3
CO3	2	3	3	2	2
CO4	3	2	3	3	3
CO5	3	3	3	3	3
	3 - Stro	ng 2 -	Medium	1- Low	

3 - Strong

COURSE DESIGNER: R.MALARVIZHI

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Core Lab	RDBMS LAB	Code:212503503
	SEMESTERV	5 Hrs/Week
		Credits4

Preamble:

 ${\ensuremath{\it \boxtimes}}$ To understand the creation and design of database.

Oracle Lab:

- 1. Implementation of DDL Use Create, Alter and Drop.
- 2. Implementation of DML Use-Insert, Update, delete.
- 3. Implementation of TCL Use-Roll Back
- 4. Simple Queries using Distinct,
 - a) Order By Clause,
 - b) Between Clause
 - c) In and Not In
 - d) Like
 - e) Count Clause
 - f) Group By
- 5. To make a Equi Join
- 6. To Create a View
- 7. To drop the relation

8. Sub Queries:

Employee Relation (Eno, Ename, Age, DOB, Salary, Designation,

Dept no)

Department Relation(Dept no, Location, Dept Name)

Hotel Problem.(Hotel (Hno, Hname, Address))

(Room (Rno, Hno, Type, Price))

(Booking (Hno, Gno, Datefrom, DateTo, Rno))

(Guest (Gno, Hname, Address))

9. Aggregate Function

- a. Using Sum
- b. Using Average
- c. Using Maximum
- d. Using Minimum
- e. Using count

10.PL/SQLProgram

- a) Write a PL/SQL Program for Conditional Control
- b) Write a PL/SQL Program for iteractive Control using for
- c) Write a PL/SQL Program for iteractive Control using While
- d) Write a PL/SQL Program for Sequential Control
- e) Write a PL/SQL Program for Sum of Natural Number
- f) Write a PL/SQL Program for Find the Factorial Value
- g) Write a PL/SQL Program for Implicit Cursor
- h) Write a PL/SQL Program for Factorial using Procedure.
- i) Write a PL/SQL Program for Fibonacci Series using Procedure
- j) Write a PL/SQL Program for Explicit Cursor
- k) Write a PL/SQL Program for IN Parameters

REFERENCES:

- 01. Nileshshah ,Database System using Oracle, Pearson Publications.
- 02.George Koch and Kevin loney, Oracle The Complete Reference, Osborne McGraw Hill, Electronic edition, New Delhi1996.

COURSE DESIGNER: Mrs. M. SAROJA.

N.M.S.S.Vellaichamy Nadar College, Nagamalai, Madurai – 19

Core Labe

DATA STRUCTURES LAB SEMESTER V

Code: 212503504 5 Hrs/Week Credits 4

Preamble:

- \varkappa To implement basic concepts about searching, sorting stacks, queues, lists, trees and graphs
 - 01.Implementation of Singly Linked List
 - 02.Implementation of Circular Linked List
 - 03.Implementation of Stack using Array
 - 04.Implementation of Stack using Linked List
 - 05.Implementation of Queue using Array
 - 06.Implementation of Queue using Linked List
 - 07.BubbleSort
 - 08.InsertionSort
 - 09.SelectionSort
 - 10.QuickSort
 - 11.MergeSort
 - 12. Towers of Hanoi using Recursion
 - 13. Tree traversal Preorder, Inorder, Postorder
 - 14.Infix to Postfix Expression usingStack
 - 15. Evaluation of Postfix Expression
 - 16. Implementation of BFS
 - 17.Implementation of DFS

REFERENCES:

- 1. Chitra and P.T.Rajan, Data Structures, Tata Mc Graw Hill Publications, New Delhi,2008.
- 2. Data Structure and Algorithm Analysis in C, Mark Allen Weiss, Second Edition, Addison Wesley publishing company, 1997.
- 3. C and C++ Programming concepts and Data Structures, P.S.Subramanyam, BS Publications, 2013.

COURSE DESIGNER: Mrs. R.MALARVIZHI

Elective I Major **1.1 MULTIMEDIA AND ITS APPLLICATIONS** SEMESTER V

Code: 212503505 5 Hrs/Week **Credits 5**

PREAMBLE:

🗷 Multimedia is defined as interacting with information that to present visualizations of concepts, to present animations, to require interactive participation of learner or all of the media: text, graphics, images, audio, and video. Students need to learn to create and use high-quality multimedia documents, including references, lecture materials, reports, and term papers.

COURSE OUTCOMES (COs)

On Successful completion of the course, the student will be able to

No.	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)
CO 1	Explain the multimedia and hardware, software components.	Up to K3
CO2	Illustrate text, image elements in multimedia	Up to K3
CO3	Discuss Audio and video elements in multimedia	Up to K3
CO4	Explain the Product design and Multimedia Tool features	Up to K3
CO5	Outline the fundamentals of web and Multimedia Development Team	Up to K3

K1- Knowledge K2 – Understand K3-Apply

UNIT – I:

[15 Hrs]

Introduction: Objectives-Brief History of Multimedia- What Is Multimedia?-The Multimedia Market-Content and Copyright-Resources for Multimedia Developers Product and Evaluation: Objectives-Types of Products-Evaluation. Hardware, Operating Systems, and Software: Objectives-Computer Architecture-Computer Architecture Standards-Operating Systems and Software-Multimedia Computer Architecture-Software Executables and Libraries-Software Drivers.

UNIT – II:

Text: Objectives - Elements of Text-Text Data Files-Using Text in Multimedia Applications-Hypertext Graphics: Objectives -Element of Graphics-Images and Color-Graphics File and Application Formats-Obtaining Images for Multimedia Use-Using Graphics in Multimedia Application. UNIT – III:

Digital Audio: Objectives-Characteristics of Sound and Digital Audio-Digital Audio Systems-MIDI-Audio File Formats-Using Audio in Multimedia Applications: Digital video and Animation: Objectives-Background on Video-Characteristics of Digital Video-Digital Video Data Sizing-Video Capture and Playback Systems-Computer Animation-Using Digital Video in Multimedia Applications

[15 Hrs]

[15 Hrs]

Unit – IV:

Product Design Objectives-Buildings Blocks-Classes of Products-Content Organizational Strategies-Storyboarding Authoring Tools: Objectives-Categories of Authoring Tools-Selecting the Right Authoring Paradigm-One Strategy for Selecting a Tool.

UNIT – V:

[15 Hrs]

Multimedia and the Internet Objectives-The Internet-HTML and Web Authoring-Multimedia Considerations for the Internet-Design Considerations for Web Page The Multimedia Development Team: Objectives-Team Approach-Assembling a Multimedia Production Team.

TEXT BOOK:

01.David Hillman, Multimedia Technology & Applications, Galgotia Publications Pvt.Ltd ,2010

UNIT I: Chapter 1,2,3 UNIT II: Chapter 4,5 UNIT III: Chapter 6,7 UNIT IV: Chapter 8,9 UNIT V: Chapter 10,11

REFERENCES:

- 01.TayVaughan,Multimedia Making It Work,Seventh Edition-,Tata Mcgraw Hill Publishing Company Limited 2010.
- 02.Judith Jaffcoats,Multimedia in Practice-Technology and Operations,1st Impression, Prentice Hall India 2002.

WEB RESOURCES:

- 01.www.tutorialpoint.com
- 02.http://etutorials.org/
- 03.www.slideshare.net
- 04.http://www.netnic.org/concept-of-multimedia/
- 05.https://www.scribd.com/
- 06.https://www.freetimelearning.com/basics-of-computer-
- science/basics-of-multimedia.php
- 07.https://www.geeksforgeeks.org/

PEDAGOGY: Chalk, Talk, Power point presentation, Videos

COURSE CONTENTS & TEACHING / LEARNING SCHEDULE

Module No.	Торіс	No. of Lectures	Content Delivery Method	Teaching Aids
	UNIT – I [15	5 Hrs]		
1.1	Introduction: Objectives	3	Lecture	Blackboard
1.2	Resources for Multimedia Developers	3	Lecture	Blackboard
1.3	Types of Products	3	Lecture	Blackboard
1.4	Operating Systems and Software	3	PPT Presentation	LCD Projector
1.5	Multimedia Computer Architecture	3	PPT Presentation	LCD Projector
	UNIT – II [1	5 Hrs]		
2.1	Elements of Text	3	PPT Presentation	LCD Projector

[15 Hrs]

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0.0	Tout in Multimodia Applications	2	PPT	LCD		
2.2	Text in Multimedia Applications	3	Presentation	Projector		
2.3	Element of Graphics	3	Lecture	Blackboard		
0.4	Graphics File and Application	4	PPT	LCD		
2.4	Formats	4	Presentation	Projector		
2.5	Using Graphics in Multimedia Application	2	Lecture	Blackboard		
	UNIT – III [1	5 Hrs]				
3.1	Characteristics of Sound and	3	Lecture	Blackboard		
	Digital Audio	-	-			
3.2	Digital Audio Systems	2	Lecture	Blackboard		
3.3	Digital video and Animation:	3	Lecture	Blackboard		
3.4	Characteristics of Digital Video	3	Lecture	Blackboard		
25	Video Capture and Playback	1	PPT	LCD		
5.5	Systems	4	Presentation	Projector		
UNIT – IV [15 Hrs]						
4.1	Buildings Blocks	3	Lecture	Blackboard		
4.0	Classes of Products	0	PPT	LCD		
4.2	Classes of Floducts	2	Presentation	Projector		
4.2	Constant One singtion of Strategies	2	PPT	LCD		
4.3	Content Organizational Strategies		Presentation	Projector		
44	Storyboarding	2	PPT	LCD		
т.т	Storyboarding	4	Presentation	Projector		
15	Catagorian of Authoring Taola	2	PPT	LCD		
4.5	-Categories of Authorning Tools	3	Presentation	Projector		
4.6	Selecting the Right Authoring Paradigm	3	Lecture	Blackboard		
	UNIT – V [1	5 Hrs]	· · · · · ·			
5.1	Multimedia and the Internet	3	Lecture	Blackboard		
5.0		0	PPT	LCD		
5.2	HTML and Web Authoring	3	Presentation	Projector		
5.3	Multimedia Considerations for the Internet	3	Lecture	Blackboard		
	Design Considerations for Web	0	PPT	LCD		
ວ.4	Page	2	Presentation	Projector		
5.5	The Multimedia Development Team:	4	Lecture	Blackboard		

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MAPPING OF COS WITH POS

	PO1	PO2	PO3	PO4	PO5	
CO1	2	2	2	2	3	
CO2	2	3	1	1	2	
CO3	3	3	3	2	2	
CO4	3	3	3	3	3	
CO5	3	3	3	3	3	
	3 - Stro	ng 2 -	Medium	1- Low		

COURSE DESIGNER: Mr.R.Ganesh

Elective I - Major I.2 PYTHON PROGRAMMING SEMESTER V

Code: 212503506 5 Hrs/Week Credits 5

PREAMBLE:

To introduce open source programming language and to acquire programming skills in python.

Un a	On Successful completion of the course, the student will be able to				
No.	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)			
CO1	Get introduced to Python programming Language	Up to K3			
CO2	Understand the Functions and Modules	Up to K3			
CO3	Demonstrate the Strings and String Operations.	Up to K3			
CO4	Get acquainted with Files and User I/O	Up to K3			
CO5	Understand various data types like lists, tuples, Sets and Dictionaries	Up to K3			

COURSE OUTCOMES (COs)

On Successful completion of the course, the student will be able to

K1- Knowledge K2 – Understand K3-Apply

UNIT-I:

[15 Hrs]

Basics of Python Programming: Introduction-Features of Python-History of Python-The Future of Python-Writing and Executing First Python Program-Literal Constants-Variables and Identifiers-Data Types-Input Operation – Comments-Reversed Words – Indentation-Operators and Expressions-Expression in Python-Operations on Strings-Other Data Types-Type Conversion.

Decision Control Statements: Selection/Conditional Branching Statements-Basic Loop Structure/Iterative Statements-Nested Loops – The Break Statement-The Continue Statement – The Pass Statement – The Else Statement Used With Loops

UNIT-II:

[15 Hrs]

[15 Hrs]

Function and Modules: Introduction-Function Definition-Function Call-Variable Scope and Lifetime–The Return Statement-Recursive Functions – Modules-Packages in Python-Standard Library Modules-Globals(),Locals(),and Reload().

UNIT-III:

Strings: Introduction-Concatenating, Appending, and Multiplying Strings-Strings are Immutable-String Formatting Operator-Built-in String Methods and Functions-Slice Operation-ord() and chr() Functions- in and not in Operators-Comparing Strings. UNIT-IV:

[15 Hrs]

File Handling: Introduction- File Path-Types of Files-Opening and Closing Files-Reading and Writing Files-File Positions-Renaming and Deleting Files-Directory Methods.

UNIT-V:

[15 Hrs]

Data Structures: Introduction - Sequence - Lists - Tuple -Sets-Dictionaries.

TEXT BOOK:

01.Reema Thareja, Python Programming Using Problem Solving Approach, Oxford University Press, 2020.

Unit	Chapter
Ι	3,4
II	5 (Mentioned Topics Only)
III	6(Mentioned Topics Only)
IV	7
V	8(Mentioned Topics Only)

REFERENCE:

- 01.Ch.satyanarayana M.Radhika Mani, B.N.Jagadesh,Python Programming, Universities Press, 2018.
- 02.Allen B.Downey, Think Python: How to Think like a Computer Scientist, 2nd Edition, O'Reilly/Shroff Publishers, 2019

WEB RESOURCES:

- 01.https://docs.python.org/3/tutorial/
- 02.https://www.w3schools.com/python/
- 03.https://www.tutorialspoint.com/python/

PEDAGOGY: Chalk, Talk, Power point presentation, Videos

	COURSE CONTENTS & TEACHING	/ LEARI	NING SCHED	ULE
Module No.	Торіс	No. of Lectures	Content Delivery Method	Teaching Aids
	UNIT – I [15]	Hrs]		
1.1	Basics of Python Programming: Introduction-Features of Python- History of Python–The Future of Python	2	Lecturer	Black board
1.2	Writing and Executing First Python Program-Literal Constants- Variables and Identifiers-Data Types	2	PPT Presentation	Projector
1.3	Input Operation – Comments- Reversed Words – Indentation- Operators and Expressions- Expression in Python-Operations on Strings-Other Data Types-Type Conversion	3	PPT Presentation	Projector
1.4	Decision Control Statements:Selection/ Conditional Branching Statements-Basic Loop Structure/ Iterative Statements	4	Lecturer	Black board
1.5	Nested Loops-The Break Statement- The Continue Statement-The Pass Statement-The Else Statement Used With Loops	4	Lecturer	Black board

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	UNIT – II [15]	Hrs]					
2.1	Function and Modules: Introduction-Function Definition	3	PPT Presentation	Projector			
2.2	Function Call-Variable Scope and Lifetime	2	PPT Presentation	Projector			
2.3	The Return Statement-Recursive Functions – Modules	3	Lecturer	Black board			
2.4	Packages in Python-Standard Library Modules	4	Lecturer	Black board			
2.5	Globals(),Locals(),and Reload()	3	Lecturer	Black board			
	UNIT – III [15	Hrs]					
3.1	Strings: Introduction- Concatenating, Appending, and Multiplying Strings	3	Lecturer	Black board			
3.2	Strings are Immutable-String Formatting Operator	3	PPT Presentation	Projector			
3.3	Built-in String Methods and Function	3	PPT Presentation	Projector			
3.4	Slice Operation- ord() and chr() Functions	3	Lecturer	Black board			
3.5	in and not in Operators-Comparing Strings	3	Lecturer	Black board			
	UNIT – IV [15 Hrs]						
4.1	File Handling: Introduction- File Path	3	Lecturer	Black board			
4.2	Types of Files-Opening and Closing Files	3	PPT Presentation	Projector			
4.3	Reading and Writing Files-File Positions	3	PPT Presentation	Projector			
4.4	Renaming and Deleting Files	3	Lecturer	Black board			
4.5	Directory Methods	3	Lecturer	Black board			
UNIT – V [15 Hrs]							
5.1	Data Structures: Introduction	2	Lecturer	Black board			
5.2	Sequence - Lists	3	PPT Presentation	Projector			
5.3	Tuple	3	PPT Presentation	Projector			
5.4	Sets	3	Lecturer	Black board			
5.5	Dictionaries	4	Lecturer	Black board			

MAPPING OF COs WITH POs

	PO1	PO2	PO3	PO4	PO5
CO1	3	3	2	3	2
CO2	3	2	3	2	3
CO3	3	3	2	3	3
CO4	3	2	2	3	2
CO5	3	2	3	2	3
	3 Stro	ng ()	Medium	1 Low	

3 - Strong 2 - Medium 1- Low

COURSE DESIGNER: Mr. Jeganathan

PYTHON PROGRAMMING L	AB Code: 214403525
II SEMESTER V	2 Hrs/week
	Credits 2
	PYTHON PROGRAMMING L II SEMESTER V

Preamble:

🖉 To develop programming skills in Python

Content:

- 1. Python program to find factorial for a given number.
- 2. Python program to generate Fibonacci series.
- 3. Python program to implement classes and objects.
- 4. Python program to implement the concept of constructors.
- 5. Python program to implement the various types of Inheritance.
- 6. Python program to demonstrate method overriding.
- 7. Python program to demonstrate Exception.
- 8. Python program to demonstrate Multithreading.
- 9. Program to manipulate String
- 10. Python Program to implement looping statements
- 11. Python Program to implement Conditional statements
- 12. Python Program to implement function
- 13. Python Program using interface
- 14. Python Program using packages
- 15. Python Program using Files
- 16. Python Program to implement build in functions

REFERENCE:

01. ExploringPython-TimothyA.Budd,TataMcGrawHill,2017

WEB RESOURCES:

01.https://www.programiz.com/python-programming/example 02.https://pythonprogramming.net

COURSE DESIGNER: Mr. Jeganathan

Part IV	VISUAL PROGRAMMING LAB	Code: 218203525
Skill Based Elective – III	SEMESTER V	2 Hrs/Week
		Credits 2

PREAMBLE:-

 $\not {\it \boxtimes} \$ To inculcate the basic knowledge in visual programming and to design discrete applications with the knowledge acquired.

LIST OF PROGRAMS

- 1.VB program using Text, Label boxes and Command button.
- 2. VB program to implement Numeric functions.
- 3. VB program to implement Date and Time functions.
- 4. VB program to animate Text and Picture.
- 5. VB program to implement Date format.
- 6. VB program to implement Scale properties.
- 7. VB program to implement Color properties.

- 8. VB program to display Scroll values.
- 9. VB program to design Digital Clock.
- 10. VB program to create animation using Image boxes.
- 11. VB program to implement Line and Shape controls.
- 12. VB program to display concentric circles.
- 13. VB program to change the radius of Circle.
- 14. VB program to change the Window state and create color mixer using slider.

REFERENCES:

- 01.Steven Holzner, Visual Basic 6 Programming, Dreamtect Press, Reprint edition, 2014.
- 02.Gary Cornell, Visual Basic 6.0 from the ground up, TataMcGrawHill, Edition, 31st reprint, New Delhi, 2010.

WEB RESOURCES:

- 1. https://www.vbtutor.net
- 2. https://www.tutlane.com/tutorial/visual-basic

COURSE DESIGNER: Mrs. J. KALPANA DEV

***************************************	***************************************	*******
Self Learning Course–Major	CLIENT/SERVER COMPUTING	÷
	SEMESTER V	Code: 218003525 Addl. Credits 4
- <i>11</i>		

Preamble:

- ✓ Gain exposure on most common used servers.
- Inderstand the concept of Client-Servers development and learn problem solving skills through design scenarios for network environment.
- Develop a client-server based application.

UNIT – I:

Overview of Client Server Computing – Evolution of Client Server application – overview of Client/Server – Understanding Client Server Computing.

UNIT – II:

Client Hardware and software-Client Software Products- Client Requirements.

UNIT – III:

Server Hardware –Server Environment-Server operating system- Server Requirements- Server data Management and access tools.

UNIT – IV:

Overview of Networking LAN Hardware and Software –Development – Production requirement –Future trends.

UNIT – V:

Application Development tools-Managing the Production environment-Production requirement- Future trends.

TEXT BOOK:

01.Dawna Travis Dewire, Client Server Computing, McGraw Hill International, 14th reprint Editions, New Delhi -2010.

	· ·	•
Unit-I	Chapter	1, 2, 3, 4
Unit-II	Chapter	5, 6, 7
Unit-III	Chapter	8, 9, 10, 11, 12
Unit-IV	Chapter	13, 14, 15, 18
Unit-V	Chapter	17, 18, 19

REFERENCE:

01.Patrick Smith & Steve Guangerich, Client Server Computing, PHI -II Edition, 14th reprint, NewDelhi.2010. *************

Core Subject

COMPUTER NETWORKS Code: 212503601 SEMESTER VI 4 Hrs/ Week **Credits 4**

PREAMBLE

Z To develop an understanding of computer networking basics, different components of computer networks, various protocols, modern technologies and their application.

COURSE OUTCOMES ICOS	COURSE	OUTCOMES	(COs)
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On Successful completion of the course, the student will be able to

No.	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)
CO1	Build an understanding of the fundamental principles of computer networking and the functions of each layer in OSI and TCP/IP model.	Up to K3
CO2	Understands the Presentation layer paradigms.	Up to K3
СОЗ	Describe the functions of data link layer and explain the protocols.	Up to K3
CO4	Classify the routing protocols and analyze the soundness or potential flaws in proposed protocols	Up to K3
C05	Explain the functions of Application layer paradigms.	Up to K3

UNIT- I:

K1- Knowledge K2 – Understand K3-Apply [12 Hrs]

Introduction : Uses of Computer Networks - Network Hardware -Network Software – Reference Models – Example Networks.

UNIT – II:

Physical Layer : Transmission Media - Wireless transmission - The telephone system - Communication satellites. [12 Hrs]

UNIT – III:

Data link Layer - Elementary Data link protocols - Sliding Window Protocols - The Channel Allocation problem -. Multiple Access Protocols -ALOHA, CSMA, Collision Free Protocols.

UNIT – IV:

Network Layer - Routing Algorithms - Shortest path, Flooding Hierarchical and Broadcast.

[12 Hrs]

[12 Hrs]

UNIT – V:

[12 Hrs]

Application Layer : DNS – The domain Name System – Electronic Mail – The World Wide Web – Multimedia.

TEXT BOOK:

01.Andrew Tanenbaum S, Computer Networks, Prentice Hall of India, 6th Edition, New Delhi, 2015.

, , ,	
Unit I Chapter 1	1.1 – 1.5
Unit II Chapter 2	2.2 – 2.4, 2.7
Unit III Chapter 3, 4	3.3 & 3.4, 4.1, 4.2 [4.2.1 4.2.3]
Unit IVChapter 5	5.2 [5.2.1 – 5.2.7]
Unit V Chapter 7	7 [7.1 – 7.3]
_	

REFERENCES:

- 01.Forouzen, Data Communications and Networking, Tata McGraw Hil, New Delhi, 5TH Edition, 2003.
- 02.William Stallings, Data and Computer Communications, Pearson Education, 10th Edition, New Delhi, 2003.

WEB RESOURCES:

- 01.https://www.javatpoint.com/computer-network-tutorial
- 02.https://www.geeksforgeeks.org/computer-network-tutorials/
- 03.https://www.tutorialspoint.com/data_communication_computer_netw ork/index.htm

PEDAGOGY: Chalk and talk, LCD Projector, Desktop Computer.

Content Module No. of Topic Delivery **Teaching Aids** No. Lectures Method UNIT – I [12 Hrs] Blackboard & 2 1.1 Uses of Computer Networks Lecture Chalk Blackboard 1.22 Network Hardware Lecture & Chalk Blackboard Network Software 2 1.3Lecture & Chalk PPT 1.4 **Reference Models** 4 LCD Projector Presentation PPT 1.5**Example Networks** 2 LCD Projector Presentation UNIT – II [12 Hrs] Transmission Media - Wired PPT 2.13 LCD Projector Transmission Presentation PPT 2.2Wireless Transmission 3 LCD Projector Presentation Blackboard & 2.33 The Telephone System Lecture Chalk PPT 2.4 **Communication Satellites** 3 LCD Projector Presentation UNIT – III [12 Hrs] **Elementary Datalink** Blackboard 3.1 3 Lecture protocols & Chalk The Channel Allocation Blackboard 3.2 2 Lecture Problem & Chalk Blackboard 3.3 Multiple Access Protocols 4 Lecture & Chalk Blackboard 3.4 **Collision Free Protocols** 3 Lecture & Chalk

COURSE CONTENTS & TEACHING / LEARNING SCHEDULE

	UNIT – IV	[12 Hrs]	
4.1	Routing Algorithms	1	Lecture	Blackboard & Chalk
4.2	Shortest path Routing	2	PPT Presentation	LCD Projector
4.3	Flooding	3	PPT Presentation	LCD Projector
4.4	Hierarchical Routing	3	PPT Presentation	LCD Projector
4.5	Broadcast routing	3	PPT Presentation	LCD Projector
	UNIT – V	[12 Hrs]		
5.1	DNS	2	Lecture	Blackboard & Chalk
5.2	Electronic Mail	2	PPT Presentation	LCD Projector
5.3	The World Wide Web	4	Lecture	Blackboard & Chalk
5.4	Multimedia	4	PPT Presentation	LCD Projector

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MAPPING OF COs WITH POs

	PO1	PO2	PO3	PO4	PO5
CO1	1	2	2	2	3
CO2	2	3	1	1	2
CO3	3	3	3	2	2
CO4	3	3	3	3	3
CO5	3	3	3	3	3
	3 - Stro	ng 2 -	Medium	1- Low	

COURSE DESIGNER: Mrs.J. Kalpana Devi

Core Subject

SOFTWARE ENGINEERING SEMESTER VI

Code: 212503602 4 Hrs/ Week Credits 4

PREAMBLE

✓ This course helps students to become efficient programmers by learning best programming practices and testing techniques.

COURSE OUTCOMES (COs)

On Successful completion of the course, the student will be able to

No.	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)	
CO 1	Build an understanding of the software engineering definitions and quality productivity factors.	Up to K3	
CO2	Understands the Software cost estimation.	Up to K3	
CO3	Describe the functions of software requirements.	Up to K3	
CO4	Understand the software design concepts.	Up to K3	
CO5	Explain the functions of Verification and validation techniques and software maintenance.	Up to K3	
K1- Knowledge K2 – Understand K3-Apply			

UNIT – I:

[12 Hrs]

Introduction to Software Engineering: Some Definitions – Some Size factors – Quality and Productivity Factors – Managerial Issues.

N.M.S.S.Vellaichamy Nadar College, Nagamalai, Madurai – 19

Planning a Software Project: Defining the Problem - Developing a Solution Strategy - Planning the Development Process - Planning an Organizational Structure – Other Planning Activities. UNIT – II: [12 Hrs]

Software Cost Estimation: Software Cost Factors - Software Cost Estimation Techniques - Staffing-Level Estimation - Estimating Software Maintenance Costs.

UNIT – III:

Software Requirements Definitions: The Software Requirements Specification - Formal Specification Techniques - Languages and Processors for Requirements Specification.

UNIT – IV:

Software Design: Fundamental Design Concepts - Modules and Modularization Criteria - Design Notations - Design Techniques - Detailed Design Considerations - Real- Time and Distributed System Design - Test Plans - Milestones, Walkthroughs, and Inspections - Design Guidelines. UNIT – V: [12 Hrs]

Verification and Validation Techniques: Quality Assurance - Static Analysis – Symbolic Execution – Unit Testing and Debugging – System Testing - Formal Verification.

Software Maintenance: Enhancing Maintainability During Development - Managerial Aspects of Software Maintenance - Configuration Management - Source-Code Metrics - Other Maintenance Tools and Techniques.

TEXT BOOK:

01.Software Engineering Concepts, Richard Fairley, Tata McGrawHill Publishing Company Limited, NewDelhi,2017

UNIT - I	:	Chapters: $1.1 - 1.4$, $2.1 - 2.5$
UNIT – II	:	Chapters: 3.1 - 3.4
UNIT – III	:	Chapters: 4.1 – 4.3
UNIT – IV	:	Chapters: 5.1 – 5.9

UNIT – V : Chapters: 8.1, 8.3 - 8.7, 9.1 - 9.5

REFERENCES:

- 01.Fundamentals of Software Engineering Rajib Mall, Prentice Hall of India Pvt. Ltd., New Delhi,2003.
- 02.Roger S. Pressman, 2007, Software Engineering Concepts, 7thedn, McGraw Hill
- 03.Software Engineering K.L.James, Prentice Hall of India Pvt. Ltd., New Delhi, 2009.
- 04.IAN SOMMERVILLE, 2010, Software Engineering, 10thedn, Pearson Education Asia.

WEB RESOURCES:

- 01.https://www.tutorialspoint.com/software_engineering/
- 02.https://lecturenotes.in/subject/104/software-engineering-se
- 03.https://www.techopedia.com/definition/13296/software-engineering

[12 Hrs]

[12 Hrs]

PEDAGOGY: Chalk	and	talk,	LCD	Projector
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COURSE CONTENTS & LEACHING / LEARNING SCHEDULE						
Module No.	Торіс	No. of Lectures	Content Delivery Method	Teaching Aids		
UNIT – I [12 Hrs]						
1.1	Definitions	3	Lecture	Black board		
1.2	Some Size factors	3	Lecture	Black board		
1.3	Quality and Productivity Factors	3	Lecture	Blackboard		
1.4	Managerial Issues	3	PPT	LCD Projector		
	UNIT – II [12 Hrs]				
2.1	Software Cost Factors	3	PPT Presentation	LCD Projector		
2.2	Software Cost Estimation Techniques	3	PPT Presentation	LCD Projector		
2.3	Staffing-Level Estimation	3	Lecture	Blackboard a		
2.4	Estimating Software Maintenance Costs	3	PPT Presentation	LCD Projector		
	UNIT – III	[12 Hrs]				
3.1	Software Requirements Definitions	3	Lecture	Blackboard		
3.2	The Software Requirements Specification	3	Lecture	Blackboard		
3.3	Formal Specification Techniques	3	Lecture	Blackboard		
3.4	Languages and Processors for Requirements Specification	3	Lecture	Blackboard		
UNIT – IV [12 Hrs]						
4.1	Software Design	2	Lecture	Blackboard and Chalk		
4.2	Fundamental Design Concepts	3	PPT Presentation	LCD Projector		
4.3	Modules and Modularization Criteria	3	PPT Presentation	LCD Projector		
4.4	Design Techniques	2	PPT Presentation	LCD Projector		
4.5	Design Guidelines	2	PPT Presentation	LCD Projector		
	UNIT – V [12 Hrs]				
5.1	Enhancing Maintainability During Development	3	Lecture	Blackboard and Chalk		
5.2	Managerial Aspects of Software Maintenance	3	PPT Presentation	LCD Projector		
5.3	Configuration Management	2	Lecture	Blackboard and Chalk		
5.4	Source-Code Metrics	2	PPT Presentation	LCD Projector		
5.5	Other Maintenance Tools and Techniques.	2	PPT Presentation	LCD Projector		

COURSE CONTENTS & TEACHING / LEARNING SCHEDULE

N.M.S.S.Vellaichamy Nadar	r College, Nagamalai, Madurai – 1	9
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MAPPING OF COs WITH POs					
	PO1	PO2	PO3	PO4	PO5
CO1	2	2	2	2	3
CO2	2	3	2	2	2
CO3	3	3	3	2	2
CO4	3	3	3	3	3
CO5	3	3	3	3	3
3 - Strong 2 - Medium 1- Low					

3 - Strong 2 - Medium COURSE DESIGNER: Mr. GOBINATH.P

.NET LAB	
SEMESTER VI	

Code: 212503603 5 Hrs/ Week Credits 2

PREAMBLE:-

The aim of this course is to bridge the gap in interoperability between services of various programming languages. It provide environment for developing various types of applications, such as Windows-based applications and Webbased applications

LIST OF PROGRAMS

01.Write a program to generate n random numbers. (using rnd() function)

- 02.Write a program to accept array elements and find the minimum and maximum among them.
- 03.Write a program to find frequency of a given character in a string. (using for each loop)
- 04.Write a program to accept roll number, name, and marks in 2 subjects of a student and calculate total, average and display the grade. (using nested if)
- 05.Design an application to create a login form and validate it using msgbox.
- 06.Design an application to simulate the working of a font dialog using combo box.
- 07.Design a Pizza Order application using check box and radio buttons and also generate a bill for the same.
- 08. Design an application which calculates EMI of a loan using functions.
- 09.Design an application to implement various string operations such as reversing, case conversion, length, concatenation.
- 10.Design an application to open a text file, modify it and save the changes using built in dialog boxes.
- 11.Design a package for employee data processing
- 12.Write a program to accept sides of a triangle and then find its area, perimeter and type triangle using classes.
- 13.Write a program to perform various arithmetic operations and implement exception handling.
- 14.Design a Student Registration Application to store the student data in the database using ADO.Net
- 15.Design an inventory control system using ADO.Net.

REFERENCES:

- 01. Steven holzner, Dreamtech, VB.NET Black Book, 2002.
- 02. Pro .Net 2.0 Windows Forms and Custom Controls in C#: From Professional to Expert by Matthew MacDonald-Apress Publisher,2006
- 03. C# 6.0 and the .NET 4.6 Frame work by Andrew Troelsen and Philip Japikse, Seventh edition, Kindle Edition, Apress Publisher,2015.

WEB RESOURCES:

- 01.https://www.programiz.com/csharp-programming
- 02.https://docs.google.com/document/preview?hgd=1&id=1_b7tPf6In55l-DorHNm3FgnVKVK9w4FNyHgNqAFHMCg

COURSE DESIGNER: Mr. GOBINATH.P

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Elective – II Major	II.1 COMPUTER GRAPHICS	Code: 212503604
	SEMESTER VI	5 Hrs/Week
		Credits 5

Preamble:-

- \varkappa To educate students about computer graphics algorithms and transformations. \varkappa To understand the core concepts and mathematical foundations of computer
- graphics
- To acquire knowledge about different data structures involved in Computer Graphics

COURSE OUTCOMES (COs)

On Successful completion of the course, the student will be able to

No.	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)		
CO1	understand the basics of computer graphics, it's applications and different types of I/O devices.	Up to K3		
CO2	Implement various Line –Drawing, Circle- Generating algorithms and Area filling algorithm	Up to K3		
CO3	Understand and describe the attributes of output primitives, anti aliasing techniques, GUI and input Methods	Up to K3		
CO4	Apply 2D transformations to geometric figure and illustrate 2D viewing and clipping concepts.	Up to K3		
CO5	Explore the 3D Concepts and 3D viewing	Up to K3		
K1- Knowledge K2 – Understand K3-Apply				

[15 Hrs]

Introduction to Computer graphics and applications-Display devices-Raster scan and random scan systems-Input Devices-Graphics Software and Functions.

UNIT – II:

UNIT – I:

Output Primitives: Line –Drawing, Algorithms, Circle-Generating algorithms-Filled-Area primitives –Character generation.

UNIT – III:

[15 Hrs]

[15 Hrs]

Attributes of output Primitives: Line, curve, area Fill, Character, Text, marker and bundled attributes –Inquiry function- Anti aliasing techniques.

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GUI and input Methods: The User Dialogue- Graphical input devices-Input Functions-Interactive Picture-Construction Techniques-Virtual –Reality Environments.

UNIT – IV:

Geometric Transformations and viewing: Basic transformations-Homogeneous Co-ordinates-Composite transformations-Reflection and Shear-Window-to View Port Transformation-Viewing Functions-Point ,Line, Polygon Curve, text, exterior Clipping Operations.

UNIT – V:

[15 Hrs]

[15 Hrs]

Three Dimensional Concepts: Display Methods-Graphics Packages,

Three Dimensional Geometric and Modeling Transformations: Translation-Rotation-Scaling-Other Transformation-three Dimensional Transfer Function

Three Dimensional Viewing: Viewing Pipeline-Viewing Co-ordinates-Projections.

TEXT BOOK:

01.Donald D. Hearn and Pauline Baker M., ComputerGraphics, CVersion", PearsonEducation, SecondEdition, New Delhi, 2011.

Unit-I	:	Chap 1,2(1.1-1.8,2.1-2.3,2.5
Unit-II	:	Chap 3(3.2,3.5,3.11,3.14)
Unit-III	:	Chap 4(4.1-4.8)
		Chap 8(8.1-8.4,8.5,8.6)
Unit-IV	:	Chap 5,6 (5.1-5.4,6.3-6.11)
Unit-V	:	Chap 9(9.1,9.2)
		Chap 11(11.1-11.4,11.6)
		Chap 12(12.1-12.3)

REFERENCES:

01.Roy A Plostock, Zhigang Xiang., Schaum's outline of Computer Graphics, Tata McGraw Hill, New delhi,2020.

WEB RESOURCES:

- 01.https://www.javatpoint.com/computer-graphics-tutorial
- 02.https://www.whitman.edu/Documents/Academics/Mathematics/201 7/Shi.pdf
- 03.http://www.eazynotes.com/pages/computer-graphics/computer-graphics-algorithms.html

PEDAGOGY: Chalk and talk, LCD Projector, Desktop Computer.

COURSE CONTENTS & TEACHING / LEARNING SCHEDULE

Module No.	Торіс	No. of Lectures	Content Delivery Method	Teaching Aids
	UNIT – I [1	5 Hrs]		
1.1	Introduction to Computer graphics applications	2	Lecture	Blackboard
1.2	Display Devices	5	PPT Presentation	LCD Projector
1.3	Raster scan and random scan systems	3	Lecture	Blackboard

1.4	Input Devices	3	PPT Presentation	LCD Projector		
1.5	Graphics Software and Functions	2	Lecture	Blackboard		
	UNIT – II [1	5 Hrs]				
2.1	Line Drawing Algorithms	5	Lecture	Blackboard		
2.2	Circle Generating algorithms-	4	Lecture	Blackboard		
2.3	Fill Area Primitives	5	Lecture	Blackboard		
2.4	Character generation	1	Lecture	Blackboard		
	UNIT – III [15 Hrs]				
3.1	Attributes of output primitives	5	Lecture	Blackboard		
3.2	Anti aliasing techniques.	2	Lecture	Blackboard		
3.3	GUI and input Methods	3	Lecture	Blackboard		
3.4	Input Functions	3	PPT Presentation	LCD Projector		
3.5	Interactive Picture-Construction Techniques	2	Lecture	Blackboard		
	UNIT – IV	15 Hrs]	L			
4.1	Basic transformations	2	Lecture	Blackboard		
4.2	Homogeneous Co-ordinates and Composite transformations	4	Lecture	Blackboard		
4.3	Reflection and Shear-	2	Lecture	Blackboard		
4.4	Window-to View Port Transformation-Viewing Functions	2	PPT Presentation	LCD Projector		
4.5	Clipping Operations.	5	Lecture	Blackboard		
	UNIT – V [15 Hrs]					
5.1	Three Dimensional Concepts	2	Lecture	Blackboard		
5.2	Three Dimensional Geometric and Modeling Transformations	5	PPT Presentation	LCD Projector		
5.3	Three Dimensional Viewing coordinates	3	Lecture	Blackboard		
5.4	Projections.	5	Lecture	Blackboard		

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MAPPING OF COs WITH POs

	PO1	PO2	PO3	PO4	PO5
CO1	2	2	1	2	3
CO2	2	3	2	2	2
CO3	3	3	3	2	2
CO4	2	3	3	3	3
CO5	3	3	3	3	3
	3 - Stro	ng 2-	Medium	1- Low	

COURSE DESIGNER: Mrs. K.SUGANTHI

Elective II-Major

II.2 CLOUD COMPUTING SEMESTER VI

Code: 212503605 5 Hrs/Week **Credits 5**

PREAMBLE:

 \varkappa The main purpose of CLOUD COMPUTING is to present a basic architecture and Learn the fundamentals and essentials of Cloud Computing.

On	On Successful completion of the course, the student will be able to					
No.	Course Outcome	Knowledge Level (According to Bloom's Taxonomy)				
CO1	Explain the Benefits of cloud Computing	Up to K3				
CO2	Show a sound foundation of the Cloud Computing and learn how to use Cloud Services	Up to K3				
CO3	Infer some important Cloud Computing driven commercial systems	Up to K3				
CO4	Outline how to store and share files in cloud	Up to K3				
CO5	Analyze using and adopting Cloud Computing Tools and Services in real life Scenario	Up to K3				

COURSE OUTCOMES (COs)

UNIT – I:

Understanding cloud computing: An introduction to cloud computingwhat it is & what it is not- History - The network is the computer: How cloud computing works. Companies in the cloud: cloud computing today. The pros and cons of cloud computing- benefits- how to develop cloud services. UNIT – II: [15 Hrs]

K1- Knowledge K2 - Understand K3-Apply

Cloud computing for the community- Cloud computing for the corporation-Using cloud services: collaborating on calendars, schedules, and Task management. Exploring online calendar applications- Exploring online schedule applications- Exploring online planning and task management. UNIT – III: [15 Hrs]

Collaborating on Event Management: Event Management applications -Exploring Event Management Applications - Collaborating on project Management: Exploring project Management Applications - Collaborating on databases: how it works Exploring Web-Based Databases. UNIT – IV:

Storing and sharing Files and other Online Content: Understanding Cloud Storage- Evaluating Online File- Storage and Sharing Services-Exploring Online Book marking Services. Sharing Digital Photographs: Exploring online photo-editing Applications - Exploring Photo- Sharing Communities. Controlling it all with Web Based Desktops.

[15 Hrs]

[15 Hrs]

Department of Computer Science

UNIT – V:

[15 Hrs]

Collaborating via Web - Based Communication Tools: Evaluating Mail Services Instant Messaging Services - Web Conferencing services. Collaborating via Social networks and Groupware: creating groups on social networks – Evaluating online Groupware.

TEXT BOOK:

01.Michael Miller "CLOUD COMPUTING Web-Based Applications ThatChange The Way You Work and Collaborate Online", Pearson Education, First Edition 2008.

Chapter 1,2,3
Chapter 5,6,7
Chapter 8,10,13
Chapter 15,16,17
Chapter 18,19

REFERENCES:

- 01.Velte T. Antony, Velte J. Toby., Elsenpeter Robert, "Cloud Computing: A Practical Approach", Tata McGraw-Hill , Year 2017.
- 02.Beard Haley, "Cloud Computing Best Practices for Managing and Measuring Processes for On-demand Computing, Applications and Data Centers in the Cloud with SLAs", EmereoPvt. Limited, Second Edition ,year 2009

WEB RESOURCES:

01.https://en.wikipedia.org/wiki/Cloud_computing

02.https://www.salesforce.com/what-is-cloud-computing/

 $03.https://www.webopedia.com/TERM/C/cloud_computing.html$

04.https://www.javatpoint.com/cloud-computing-tutorial

05.https://dotnettutorials.net/course/cloud-computing/

PEDAGOGY: Chalk and talk, LCD Projector.

COURSE CONTENTS & TEACHING / LEARNING SCHEDULE

Module No.	Торіс	No. of Lectures	Content Delivery Method	Teaching Aids
	UNIT – I [15 Hr	rs]		
1.1	Understanding cloud computing	3	Lecture	Black Board
1.2	The network is the computer	4	Lecture	Black Board
1.3	Companies in the cloud	4	PPT	LCD
1.4	How to develop cloud services	4	PPT	LCD
	UNIT – II [15 Hr	s]		
2.1	Cloud computing for the community- corporation	4	Lecture	
2.2	Using cloud services	6	PPT	LCD
2.3	Exploring online calendar, schedule applications and planning and task management	5	PPT	LCD
	UNIT – III [15 H:	rs]		
3.1	Collaborating on Event Management	5	Lecture	Black Board
3.2	Collaborating on Project Management	5	Lecture	Black Board
3.3	Collaborating on databased	5	PPT	LCD
	UNIT – IV [15 H:	rs]		
4.1	Storing and sharing files and other online content	10	PPT	LCD
4.2	Sharing Digital Photographs	5	PPT	LCD

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UNIT – V [15 Hrs]					
5.1	Collaborating via Web - Based Communication Tools	5	PPT	LCD	
5.2	Collaborating via social networks and Groupware	10	Lecture	Black Board	

	PO1	PO2	PO3	PO4	PO5
CO1	1	2	2	2	3
CO2	2	3	1	1	2
CO3	3	3	3	2	2
CO4	3	3	3	3	3
CO5	3	3	3	3	3
	3 - Stro	ng 2 -	Medium	1- Low	

MAPPING OF COs WITH POs

COURSE DESIGNER: Mr.R. Ganesh

Elective-III

PROJECT SEMESTERVI

Code: 212503606 6 Hrs/Week Credits 5

- ∠ Every student must complete a project work in the sixth semester
- Every student will be assigned to a staff member who will provide necessary guidance for preparation
- Every student shall be asked maintain work diary relating to the project work
- Every student must submit the project report at the end of the sixth semester before the last working day

Skill Based Electiv	ve - IV SEMESTER	VI	2 Hrs/Week Credits 2
Part – IV	MAT LAB PROGR	AMMING LAB	Code: 214403625
******	********	*****	******
	Total = 40	Total = 60	
	Viva = 10	Viva = 10	
	Report = 30	Report $= 50$	
	Internal = 40 Marks	External = 60 Marl	٤S

PREAMBLE:

To inculcate the basic knowledge in MATLAB and to manipulate of images (Enhancement, Filtering, noise removal, edge detection)

LIST OF PROGRAMS

- 1. Image Enhancement
 - a. Negative Transformation
 - b. Log Transformation
 - c. Power Law transformation
 - d. Global histogram equalization
 - e. Local Histogram Equalization
 - f. Contrast Stretching

- g. Thresholding
 - i. Global Thresholding
 - ii. Local Thresholding
- h. Image Subtraction
- 2. Image Smoothening
 - a. Low pass filter (with Mask size 3,5,7,15,35)
 - b. Gaussian filter
- 3. Median Filter
- 4. Image Sharpening
 - a. High pass filter
 - b. Laplacian Filter
 - c. High Boost Filter
- 5. Noise Removal by
 - a. Averaging Mask (size 3×3)
 - b. Median Filter (size 3×3)
- 6. Edge Detection
 - a. Roberts cross-gradient operators
 - b. Sobel operator

REFERENCES:

- 01.Digital Image Processing using Matlab, Gonzale,Richard E-Woods,Stavens L-Eddins, TMH, 2010, ISBN-13:978-0-07-070262-2, ISBN-10:0-07-070262-4
- 02.Matlab Programming, Y.Kirani Singh, BB.Chaudhuri, Ed-illustrated, PHI, 2007, ISBN:8120330811, 9788120330818
- 03.Matlab& its applications in Engineering, RajkamalBansal, Ashok Kumar Goel, Manoj Kumar Sharma, Pearson Education India., 2009, ISBN-8131716813, 9788131716816

WEB RESOURCES:

- 01.https://www.tutorialspoint.com/matlab/index.htm
- 02.https://in.mathworks.com/discovery/digital-image-processing.html

PEDAGOGY : Chalk and talk, LCD Projector, Desktop Computer.

COURSE DESIGNER: Mrs. I. PRIYANKA

N.M.S.S.Vellaichamy Nadar College, Nagamalai, Madurai – 19

PART -	IV	LINUX PROG	RAMMING LAB	Code : 218203625
Skill Ba	ased Elective – V	SEMES	TER VI	2 Hrs/Week Credits 2
PREAM	BLE: To introduce stud	lants the basis	concepts of Linux key	rnol programming
<i>ا</i> لک	techniques.	ients the busic o	concepts of Linux Ker	net programming
Ŕ	To make students interact with OS	s learn efficient	Linux commands in	cluding file operations to
Ľ	To understand ar language to solve	id make effectii problems	e use of linux utilitie	es and shell scripting
01.	Find the sum of	the digits of a	a given number	
02.	Find the reverse	e of a number		
03.	Perform basic a	rithmetic oper	ations using case	
04.	Display multipli	cation table		
05.	Check whether	a number is p	rime or not using v	vhile
06.	Convert lowerca	se to upperca	se using tr stateme	ent
07.	Check for an Ad	lam number		
08.	Check pattern r	natching using	g grep command	
09.	Find the numbe	er of users who	o have logged in	
10.	Check for paline	drome		
11.	Find age of a pe	rson using set	t date	
12.	Write a menu di system, User's c	riven program of the system,	to display today's list files of the sys	date, Processes of the tem
R	lead 10 names f rder	rom a file and	sort in Ascending	order Descending
13.	Write a menu dı not, file write at	riven program ble or not,	to check for file exi	stence, file Read able or
Get	mark details of Prepare electr	f a student an icity bill	d display total and	grade
	To set the attr	ributes of a giv	zen file	
	To check the	given file is a o	lirectory or not	
	To create and	append a file		
13.	To compare tw a) Write a shell	vo files To per script to find t	form string manipu the LCD (least com	ılation1 mon divisor) of
	two numbers	•	.1 . 1	1 1 .
14. 15	Write a shell sci	ript to periorm	the tasks of basic	calculator.
15. 16	Write a shell so	ript to find the	greatest number of	mong the three
10.	numbers		greatest number a	
17	Write a shell sci	ript to find the	factorial of a giver	number
18.	Write a shell sci	ript to check w	whether the number	r is Armstrong or not.
REFE	RENCES:	I I I I I I I I I I I I I I I I I I I		
01.	Linux Pocket G	uide Essential	Commands Danie	l J. Barrett - Jun 28,
	2016.			
02.	Gary Cornell, V Edition, 31 st re	isual Basic 6.0 print, New De) from the ground 1 lhi, 2010.	up, TataMcGrawHill,

WEB RESOURCES

01. https://www.geeksforgeeks.org/linux-commands/02. https://www.javatpoint.com/linux-tutorial/

PEDAGOGY: Chalk and talk, LCD Projector, Desktop Computer.

COURSE DESIGN	ER: Ms. K.SUGANTHI	********
Addl.Cre.Course	COMPUTER LITERACY	Code: 218003602
	SEMESTER I – VI	1 Hr/Week
	[III YEAR]	Addl. Credit 1

Common for all UG courses. External Examination will be conducted at the end of third year. (VI Semester)

Preamble:

To have a basic knowledge about the Word, Excel, PowerPoint, Access and Internet.

UNIT – I:

MS-Word:

Introduction to Word – Editing a Document – Move and Copy Text – Formatting Text and Paragraph – Finding and Replacing Text and Spelling Checking – Using Table – Tables and other Features – Using Mail Merge.

UNIT – II: MS–Excel:

Getting started with Excel – Editing Cell and using Commands and Functions – Moving and Copying, Inserting, Deleting Rows and Columns – Getting help and Formatting a Worksheet – Creating Charts.

UNIT – III:

MS-Power Point:

Introduction – Creating a New Presentation – Opening a Presentation – Creating a New Slide – Deleting a Slide – Copying a Slide – Slide Numbering – Inserting Picture.

UNIT – IV:

MS-Access:

Introduction – Starting Access 2000 – Creating a Table – Entering Table Data – Data Filters – Queries – Saving a Database – Existing Ms–Access. UNIT – V: [18 Hrs]

Internet:

Basics of Internet – Addresses and Names for the Internet, Web Objects, and Sites – Email – World Wide Web – File Transfer – The Telnet – Application of Internet.

[18 Hrs]

[18 Hrs]

[18 Hrs]

[18 Hrs]

TEXT BOOKS:

- 01. Rajkamal, Internet and Web Technologies, Tata McGraw-Hill Publication, New Delhi.
- 02. Taxali R.K., PC Software for Windows Made Simple, Tata McGraw-Hill Publication, New Delhi.

REFERENCES:

- 01. Nagapal D.P. Mastering, Ms-Office, Courter, SPB Publications.
- 02. Sanjay Saxena, Ms–Office 2007 for Everyone, Vikas Publications, New Delhi.

Department of Computer Science